UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

Rec'd 4/4/77

Admiral Stanfield Turner
Director
Central Intelligence Agency
Washington, D. C. 20505

Dear Admiral Turner:

Enclosed is a copy of Mini-Review 77-1, a short, descriptive document illustrating various potential uses of Electronic Identification and Temperature Monitoring for your agency. The work described in this document was supported by the United States Department of Agriculture and the United States Energy Research and Development Administration under interagency agreement. I hope this document proves to be useful to you and your agency.

Sincerely,

Dorothy R. Turner

Dorothy R. Turner
Management Analyst
Office of Special Projects

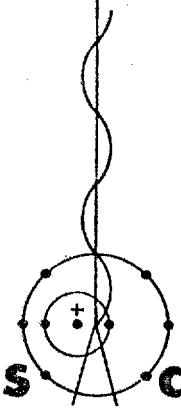
Enclosure:
Mini-Review 77-1

February 1977

Potential Uses for Electronic Identification

by

Pamela M. Petersen



los alamos
scientific laboratory
of the University of California
LOS ALAMOS, NEW MEXICO 87545

This work supported by the US Department of Agriculture and the US Energy Research and Development Administration under interagency agreement.

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
CONTRACT W-7405-ENG-36

INTRODUCTION

Los Alamos Scientific Laboratory (LASL) have been working with the United States Department of Agriculture (USDA) and the Energy Research and Development Administration (ERDA) to develop an electronic identification and temperature monitoring system for animals. The system was developed primarily to monitor animal movements through commerce and to trace back infected animals, if necessary. This review outlines several potential identification applications: to monitor a wounded soldier, to identify a stolen vehicle, and to inventory nuclear material.

With electronic identification, it is possible to develop unique and unalterable identification numbers that are recorded in local and regional data banks, with appropriate data links. These data banks must guarantee that all records are protected against unauthorized access. This system can help to improve industrial and governmental security.

HOW IT WORKS

The identification of items involves a simple interrogation operation that uses an electronic transponder and a hand-held or stationary interrogator antenna.

The microwaves are beamed from the interrogator antenna to the transponder where energy is extracted to power the transponder electronics. This changes the reflection pattern in an encoded manner to carry both identification and temperature information. The interrogator antenna picks up the encoded signal, which can be displayed to the operator and can also be recorded on magnetic tape or computer printout. The entire interrogation operation takes place remotely in less than one second.

There are three components to this LASL system which was developed initially to use in animal studies (Figs. 1 and 2). They are (1) the transponder (which contains no batteries), located upon the item being identified, (2) the hand-held antenna with the reading display on the back of the box, and (3) the battery power supply and the interrogator/receiver electronics. The power source can be made into many forms, from a back pack for portability and convenience to a stationary stand for use on a highway or in a security area. Many different antenna configurations can also be used.

	UNCLASSIFIED		CONFIDENTIAL		SECRET

EXECUTIVE SECRETARIAT

Routing Slip

TO:			ACTION	INFO	DATE	INITIAL
	1	DCI				
	2	DDCI				
	3	D/DCI/IC				
	4	DDS&T				
	5	DDI				
	6	DDA		✓		
	7	DDO				
	8	D/DCI/NI				
	9	GC				
	10	LC				
	11	IG				
	12	Compt				
	13	D/Pers				
	14	D/S				
	15	DTR				
	16	Asst/DCI				
	17	AO/DCI				
	18	C/IPS				
	19	DCI/SS				
	20	D/EEO				
	21					
	22					
		SUSPENSE		Date		

Remarks:

STAT

Executive Secretary

5 APR 77

Date

3637 (7-76)

ERDA